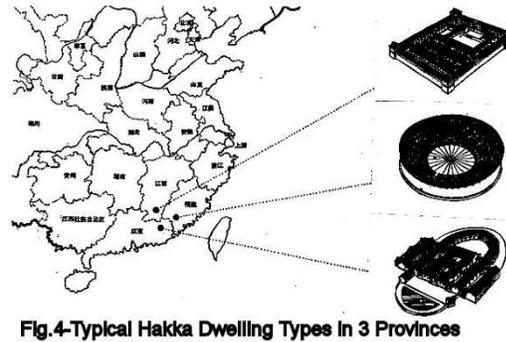
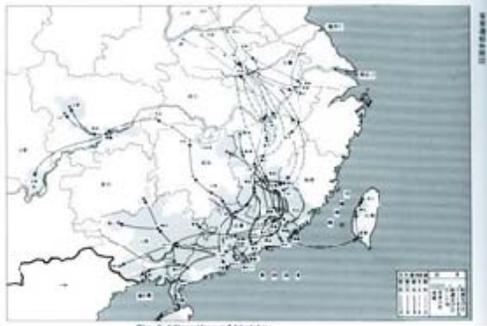




## 2 TRANSITION OF HAKKA DWELLINGS AND THEIR TYPOLOGY

It is well known that Hakka people gradually migrated from the Central Plain (中原) of the Huanghe River to the southern province border regions of *Fujian* (福建), *Jiangxi* (江西), and *Guangdong* (广东). This migration took place over 1600 years and covered a distance of 1000 Km. Furthermore, they spread beyond *Hunan* and *Hubei* to *Sichuan* to the west end of *Guangxi*, a distance of about 1000 Km; then jumped over the Taiwan Strait to Taiwan and many locations in South East Asia. Today an estimated 35 to 60 million Hakka live throughout the world. As a result of this migration, and settlement, a variety of dwelling types emerged in a variety of places in the three provinces (Figures 2 and 3).



The distinct types of the Hakka complexes in each of these provinces are:

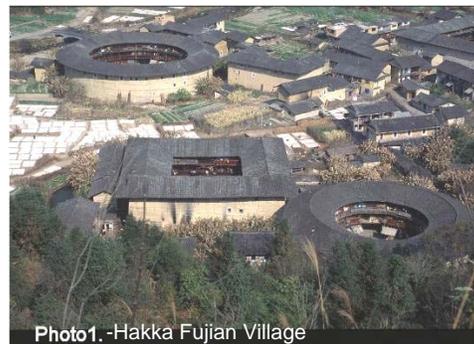
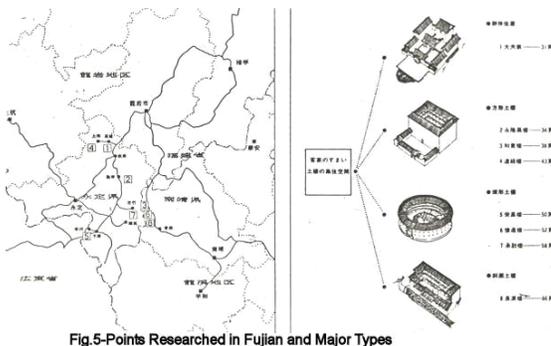
- the Round houses (Yuan Lou: 円楼), Five-phoenix house (Wu Feng Lou: 五鳳樓) in southwest Fujian
- complexes surrounded by rectangular walls (Fang Wei: 方围) in south Jiangxi,
- mixture of round and rectangular houses (Wei Long Wu: 围龍屋) in northeast Guangdong.

It would appear there are a variety of housing types; however, these types stemmed from two major dwelling types, namely Wei Lou (围楼) and Edifice-type Hakka dwellings (殿堂式客家民居). Other types were generated by the transformation required to adapt to the particular local climate and environment where those dwellings were built (Figure 4).

### 2.1 Fujian (福建省)

#### 2.1.1 Hakka Tulou Dwellings (客家土楼民居)

These complexes located in the mountainous region bordered by Longyan (龙岩), Yongding (永定) and Nanjing (南靖) are inhabited by Hakka people. The main types of complexes include the edifice-type, Wu Feng Lou (殿堂式五鳳樓), round house (Yuan Lou: 円楼) and rectangular houses (Fang Lou: 方楼) including houses on oblique planes (斜面楼) (Figure 5, and Photo 1).



One style of edifice-type house, referred to as multi-courtyard style (Jiu Ting Shi Ba Jin Shi 九序十八進式), is found in the northwest area up to Changting (長汀). The first Hakka migrants lived in this area; and then, it is presumed that later generations migrated to the harsher mountainous area and developed the round and rectangular complexes based on Wu Feng Lou an edifice-type house. It should be noted however, that during the same period, there were large-scale attractive Tulou dwellings in the southeast coastal region of this Province.

### 2.1.2 Two Types of Round Houses (Yuan Lou: 圓樓): Unit Building (maisonette) and Gallery Building

Round complexes, in particular, have been drawing attention. The round house originated in the outskirts of Yongding (永定), this style is widely recognized as the type created by Hakka people. However, originally, the round houses were developed from round forts in the coastal area and are considered to have originated in Zhangzhou 漳州 (by Huang Han Min (黃漢民), Figure 6).

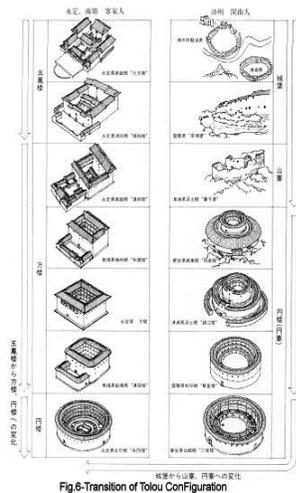


Fig.6-Transition of Tulou Configuration

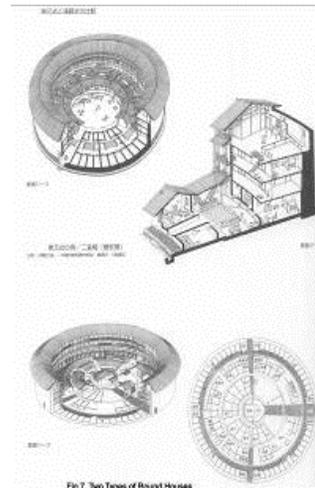


Fig.7 Two Types of Round Houses

Round hills abound in this area; it is thought Hakka people built castellated walls around hills creating round forts which eventually evolved into unit-style round houses. This style inherited by Hakka people who migrated afterward to Yongding evolved into round houses (Figure 7).

The unit (maisonette) type house in Fujian is constructed so that the units are divided like the segments of an orange with each unit facing a common patio. When entering the dwelling, there is a kitchen and a dining area with a low ceiling; from there you can enter the private rooms on the second to fourth floor (Photos 2 and 3).



Photo2.-View of Jue Ning Lou



Photo3.-1F Residence of Jue Ning Lou

In contrast, in the gallery-style complex each room is connected by a passage surrounding the patio of each floor and communal stairs in the Tulou. Individual dwellings unit are constructed vertically. The kitchen and dining room are located on the ground floor facing the patio; storage is located on the second floor; and individual rooms are on and above the third floor. The rectangular Tulou has a similar construction except for the shape (Photos 4 and 5).



Photo4.-Façade of Huai Yuan Lou



Photo5.-Interior View of Huai Yuan Lou

Along with the evolution from Wu Feng Lou to rectangular and round shapes complexes, it is presumed that the dwelling, governed by traditional custom placing the householder in the center, was gradually changed into one in which all family members are equalized so that the family can adapt to collective labor. We can see the impact of this equalization in the gallery style complex compared to the individual units in the unit-style complex.

Fujian or Hakka, whoever created the round complexes, their development is a remarkable achievement. The thick clay walled exterior appears closed and uninhabitable; but the interior is totally different. The internal space under a blue sky, cut out in round or rectangular shapes, with eaves surrounding each floor, filled with life, sounds and scents take us back in time. But it is also a space to imagine the future.

## 2.2 Jiangxi (江西省)

Jiangxi Province, farthest from the Central Plane west of Fujian Province, has a distinct location and conditions. The Ganjiang River (赣江) flowing north to south through the province was a major migration route. Because the geography is not harsh Jiangxi was easily invaded, and therefore was a region where rival warlords fought or the central government troops were stationed.

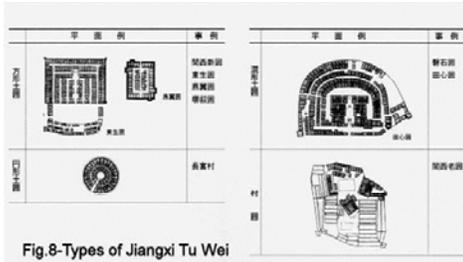


Fig.8-Types of Jiangxi Tu Wei

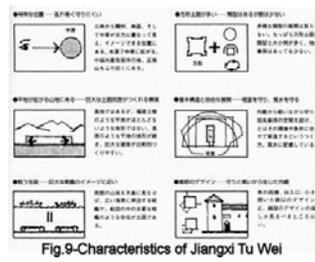


Fig.9-Characteristics of Jiangxi Tu Wei



Fig.10-Plane View of Quanzhi Xinhai Wei



Photo6.-View of Yan Yi Wei



Photo6.-View of Yan Yi Wei



Photo8.-Interior of Dong Sheng Wei

The An-Shi Rebellion in the middle of the Tang Dynasty resulted in mass migration from the north; this is referred to as the 2<sup>nd</sup> phase of Hakka settlement. Further mass migrations occurred during the Huang Chao Rebellion at the end of the Tang Dynasty; and the invasion of 200,000 Yuan in the terminal stage of Sung. Security was a major concern in this area.

Chunan (全南), Dingnan (定南), Ronnan (龍南) located on the southern border with Guangdong, have many Wei Lou (圍樓). Wei Lou style is found in areas requiring defense. It is obvious why these fortified dwellings were developed in these areas. Generally, the complexes are square similar to that of the Chinese letter; some have modified shapes of 回 and 国, and some large dwellings having additional -shaped circumferences surrounding the buildings. Raised towers (角居樓) are located at each corner to eliminate blind angles. There are only a few circle houses (Figures 8, 9, 10; Photos 6, 7, 8) in this area.

### 2.3 Guangdong (広東)

Guangdong Province, furthest from the Central Plain, supported the secondary migration and settlement of the Fujian/Jiangxi Hakka people. Coastal cities like Guangzhou (広州), Shenzhen (深圳) and Shantou (汕頭) became bases for international trade and travel. Here it is thought that the original designs were influenced by local styles to produce a number of variations (Figure 11).

#### 2.3.1 Wei Long Wu (圍龍屋) Dwellings

Wei Long Wu-type houses around Meizhou (梅州) in the northeastern part of the province have unique characteristics. They included a semi-round pond in front of the dwelling; three buildings, namely, the lower house (Xia Tang: 下堂), middle house (Zhong Tang: 中堂) and upper house (Shang Tang: 上堂), located in the center of the dwelling; side houses (Heng Wu: 橫屋) for habitation are arranged on both sides of these. Residential buildings surround the semi-round garden (化胎) which rises obliquely backward. The defensive function is less dominant; the complexes are more representative of an agricultural community. Therefore, it is presumed that this area was relatively unthreatened (Figures 12, 13, Photo 9, 10)

#### 2.3.2 Tu Wei (土圍) and Si Ju (世居)

Tu Wei (土圍) and towers (Diao Lou 碉樓) similar to Jiangxi's Wei Wu (圍屋) are found in the northern region, evidence of the harsher environment (Photo 11). Gigantic dwellings referred to as Si Ju (世居) are found around Shenzhen (深圳) in the southern part of the province (Photo 12). Similar complexes are preserved in Hong Kong (Photo 13). Many were built in the more recent Qing period, and are massive. The integration of wealth and population is amazing. The fact that these complexes include large front ponds may relate to Hakka style architecture; or may have emerged from the fusion of Hakka and local Guangdong styles (広府民居). Si Ju may more accurately be referred to as villages surrounded by castellated walls. There is some foreign cultural influence in Guangdong due to its location but it is limited.

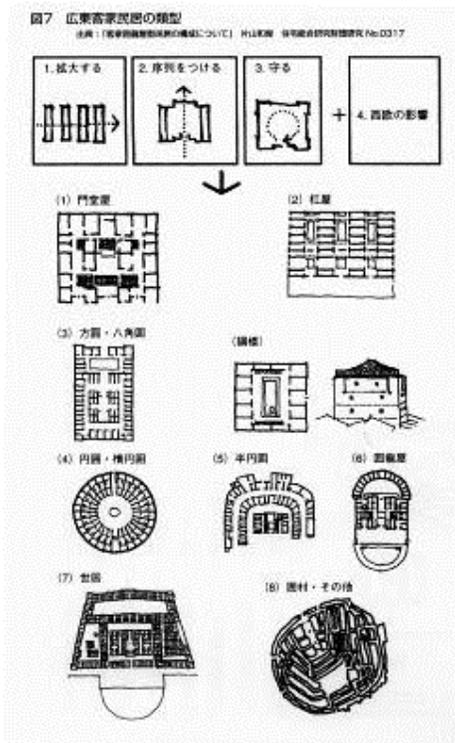


Fig.11-Types of Guangdong Hakka Dwellings

## 3 SPATIAL ORDER AND BASIC ARCHITECTURE OF HAKKA TULOU

As described above, each Tulou dwelling in the three provinces has unique characteristics; and common features. Some elements are specific to Hakka dwellings while others are typical characteristics of Chinese dwellings. Rather, it may be more natural to consider that these buildings were generated by the local transformation of the traditional basic structure of Chinese dwellings.

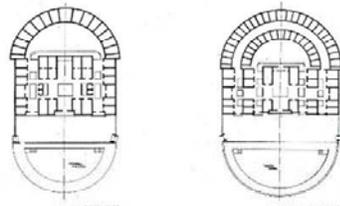


Fig.12-Plane View of Wei Long Wu Type Dwelling

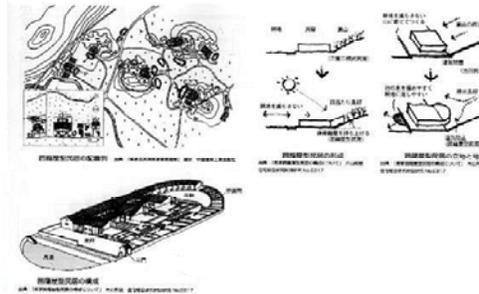


Fig.13-Constitution of Guangdong Wei Long Wu Type Dwelling

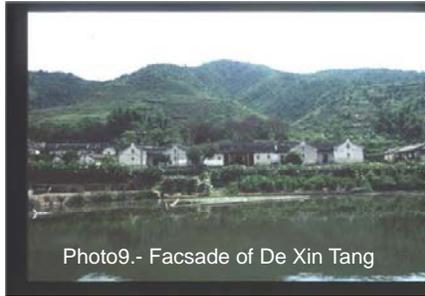


Photo9.- Facsade of De Xin Tang



Photo10.- Back yard of De Xin Tang



Photo11.-Yong Cheng Bao Zhang Lou at Guang Dong



Photo12.-Da Wan Shi Ju



Photo13.- in Hong Kong -Jin Tian Ji Qing Wei

### 3.1 Basic Structure of Settlement: Feng Shui for Selecting the Place to Dwell

In a limited sense, Feng Shui is the art of selecting the site location of a house; and in a broad sense, it is considered to be “the cosmological interpretation of environment and geography”. Feng Shui’s fundamental rule in determining location for settlement is a landscape with abundant clear water and fertile land with good environmental conditions to provide good production, life and prosperity of descendants. A row of mountains is assumed to be a dragon. It is believed that if the settlement is built on the point (点穴) at the mouth of the dragon, the inhabitants could thrive. Translated into the actual landscape, a place surrounded by mountains, protected from winds, with clear and abundant water is the best place (環抱) according to Feng Shui. Feng Shui originated in the Central Plain and it is said that it was transferred and developed by people who migrated south during the Yongjia Rebellion in the West Jin Dynasty. The geometry of this area with continuous mountain ranges and river systems stretching between mountains in a meshed pattern is suitable for the application of Feng Shui (Figure 14).

### 3.2 Basic Architecture of Dwelling: House of Heaven, Earth and Man

The plane composition, roof height, main gate orientation, location of a stove, direction of drain ditches etc in Tulou dwellings were determined by Feng Shui (Figure 15). Other influences were Chinese traditional philosophy, Confucianism, Taoism, Buddhism etc... Another concept “Round Heaven and Square Earth” (天圓地方) originated in the Central Plain with a circle symbolized Heaven and the square symbolizes Earth including humans. There are two types of Hakka Tulou, round and square. Some Tulou settlements having different geometries are arranged side by side; their arrangement may reflect this concept (Photo 14).

There is also the concept of the human body as microcosm. Plane construction reflects the Guangdong plane's Wei Long Wu (圍龍屋) with Three-main two-side house styles (San Tang Liang Heng Shi 三堂兩橫式) and Five Phoenix (Wu Feng Lou 五鳳樓). Taking the human body as the model, both houses stretch forward as if to greet people (Figure 16). The Tulou reflecting this idea (Figure 17) has a basic configuration characterized, first, by a central axis used for daily life, and then a formal family area and an area for enshrine ancestors oriented from the front to back of the dwelling. Second, the plane is constructed symmetrically along a central axis. The scale was expanded while keeping this symmetry, with the towers moved backward as required. It is considered that Wei Long Wu (圍龍屋) type followed this pattern within a semi-round shape. Third is the encircling structure. The inner region is secured by protecting the circumference with multiple external walls like a box within a box.

### 3.3 Dwelling Plan-Simple Geometry and Sight Construction

Since the overall geometry is based on the round shape and/or rectangular shape, it is not complex; however, when analyzing the plane of a large-scale rectangular Tulou, a small square is revealed inside. A simple proportional relationship is found among the radii of a round Tulou. The analyses of planar and cross-section surfaces revealed the order such as triangular eyeshot. Additionally, the ratio of depth (D) to height (H) of the cross-section surface shows 1/1 - 2/1 corresponding to the rule for D/H by Maertens (Figure 18).

### 3.4 Tulou Construction: Mixing Multiple Materials; Appropriate Material, Appropriate Place

Construction techniques were developed to utilize local materials. Basically, Tulou are a mixed structure of masonry using raw earth, stones, bricks etc, with a lumber framework. External walls used rammed earth construction and mobile mold forms. The interior structure could be built up to 6 stories using logs. Materials were selected depending on their function. For example, exterior walls are constructed in such a manner that the base with a heavy load uses stone masonry with deeper eaves to protect the walls from the weather. Also, the parts serving for defense are made of stones (Figures 19, 20).

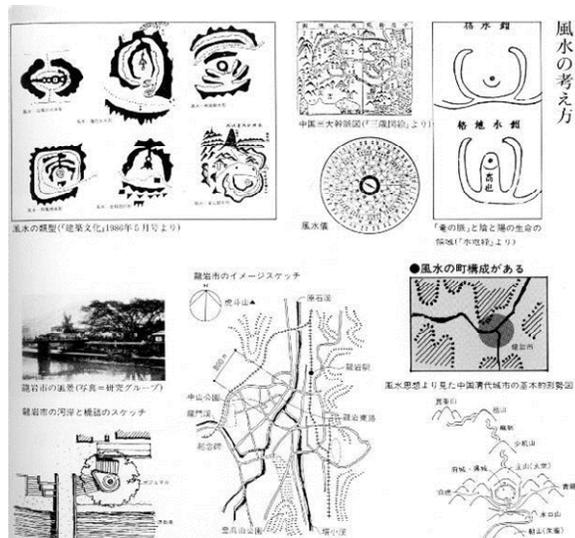


Fig.14-Vision of Feng Shui

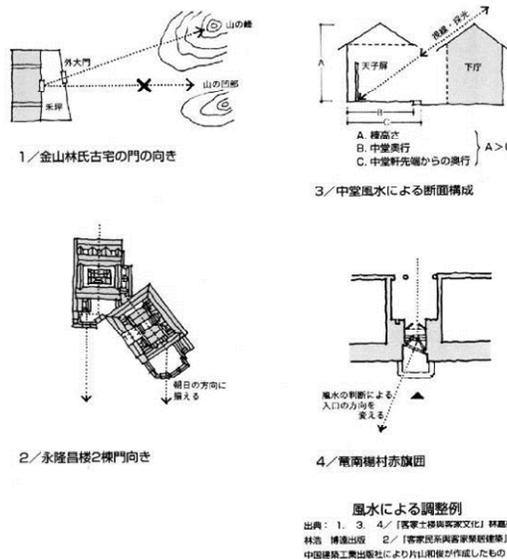
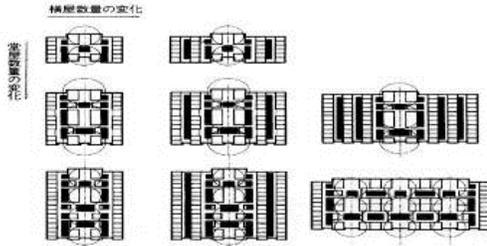


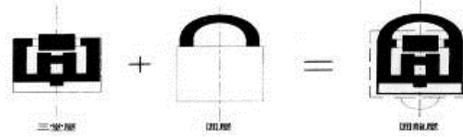
Fig.15-Feng Shui and Architecture



Photo14.-Tian Lou Keng Village



12 門堂屋の基本構成  
出典：『中国客家民間建築文化』 第4冊第3編 湖南理工大学出版社



13 三堂屋と圍龍屋の比較  
出典：『客家民系與客家聚族建築』 湯安 中国建筑工业出版社

Fig.16-Constitutions of Men Tang Wu and Wei Long Wu Type Dwelling

#### 4 LIFE OF PEOPLE WHO BUILT TULOOU

It is still unknown how the Hakka people built such gigantic Tulou. The commonly accepted theory is that when Hakka immigrated, the clan, governed by the head of the family, used extensive labor and capital to build the dwelling. This may hold true in some cases; however, it does not seem reasonable that the construction of a widely-spread group of Tulou could be built so quickly. The author believes, they were probably built after the family accumulated sufficient wealth. Following is a speculation to prove this idea.

##### 4.1 Why Could They Build Tulou? : River System as the Environment

The answer seems to lie in the commercial activity along the river system. When looking at the distribution of Tulou there are similarities beyond provincial borders. The greatest influence is geographical; by focusing on the river system, a relationship appears between the distribution of Tulou and their locations. Even mountainous areas have a mesh patterned river system. The traffic and logistics on the river system may have sustained Hakka livelihood.

The migration path of waterways forms the skeleton of China ; also, the Three-river area (三江地域) (Ganjiang 贛江, Mei Jiang (梅江), and Ting Jiang (汀江)) appears

to have supported daily life and the migration of culture. The reason why both the five-phoenix house (Wu Feng Lou: 五鳳樓) found in (Minxi 閩西) and mixture of round and rectangular houses (Wei Long Wu: 圍龍屋) in Meizhou belong to Edifice-type Hakka dwellings may be because they belong to the same river /cultural system. One can imagine that the rivers mediated commodity transportation and information exchange; and evolved into commercial activities eventually forming one cultural zone in that region. (Figures 21)

##### 4.2 Why Could They Build Tulou?: Agriculture and Diversified Management

Tulou are located in areas that do not have sufficient agricultural land yet, their main income came from agriculture while they also had to produce, trade and transport various products including lumbars, bamboos, farm produce, mineral resources and tobacco. Some Hakka people obviously acquired sufficient wealth to build these Tulou. Even in isolated regions, they had connections and cooperated with bases, coastal cities and foreign countries through economic activities, information exchange and human relationships. Using the strong bond of kinship, they could expand their power and network and cover the physical distances to accumulate enough wealth to finance their Tulou.

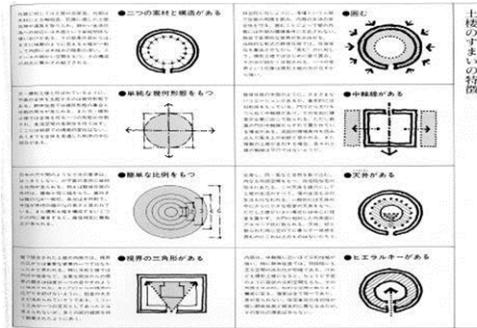


Fig.17-Basic Constitution of Tu Lou Dwelling

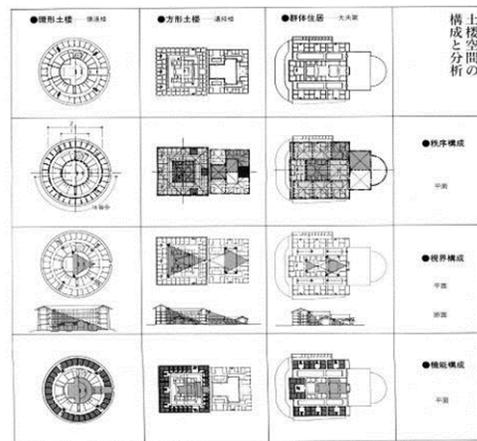


Fig.18 Spatial Order and Constitution of Tu Lou Space

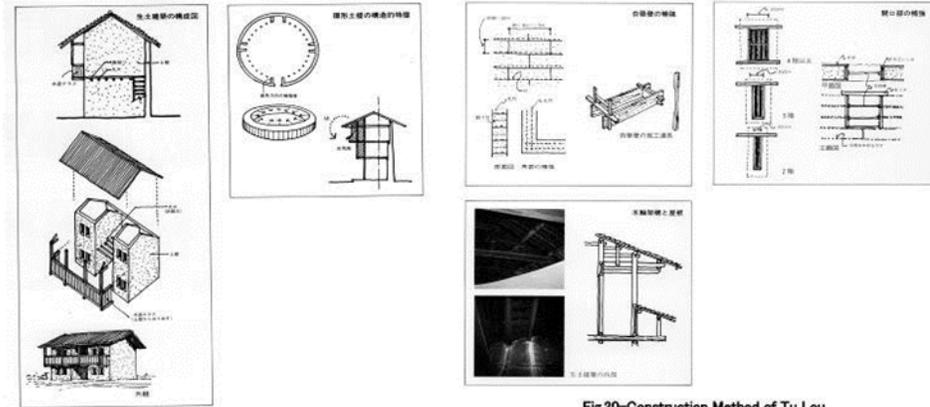


Fig.19-Construction Method of Tu Lou

Fig.20-Construction Method of Tu Lou

The accumulation of wealth and many descendants enabled the construction of Tulou, but adversely contributed to the construction of Tulou with higher and thicker walls. That is, they had to protect their larger family's and increasing wealth; therefore, there was a contradiction that the more their family and wealth increased, the more protection they required.

### 5 CLOSING REMARKS

It should be cautioned that currently these Tulou Dwellings are on the verge of extinction. The Tulou dwellings, which appeared to be the grass roots of human life only 25 years ago, are almost empty now, and we even saw dwellings in ruins. This must be the result of rapid economic development and emergence of a different type of migration in China. Since the Hakka Tulou dwellings are massive, and their numbers are many and are distributed in a wide area, it is quite difficult to imagine how to preserve them for future generations. However, they are certainly one of the greatest treasures in Chinese dwellings; we would like to believe that Hakka and Chinese people can meet this challenge as they have overcome so many challenges in their history (Photo15).



Fig.21-Living Means of Hakka People, River System

### REFERENCES

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 Katayama, Kazutoshi (2008) The World of Hakka Dwellings, ISBN 978-4-938894-96-2



Photo15 - Institutionalization Su Jia Wei